Trend Study 7-9-01

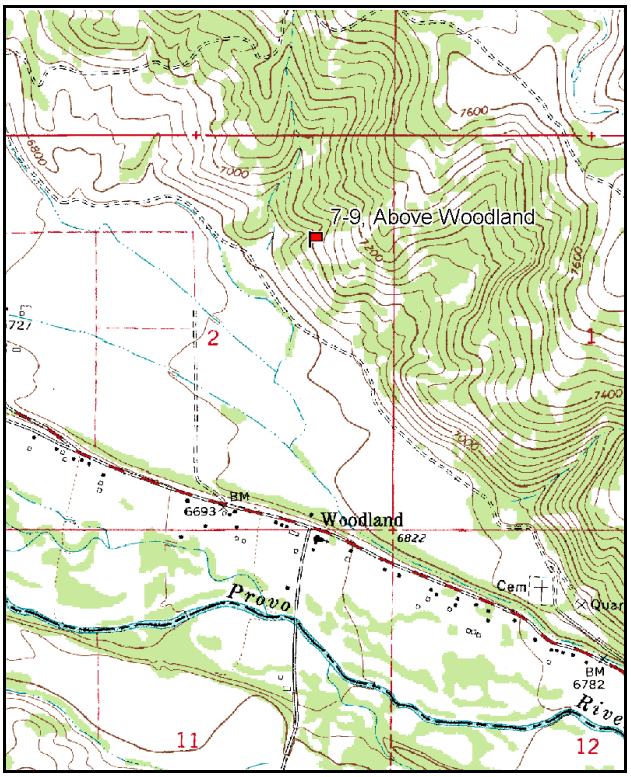
Study site name: Above Woodland . Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 76 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

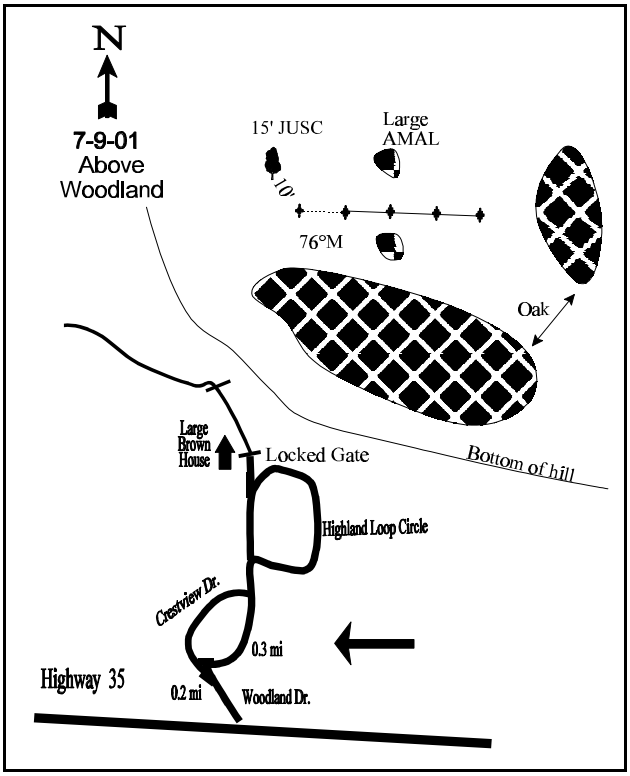
LOCATION DESCRIPTION

From the intersection of Highway 35 and Woodland Drive, west of Woodland, turn onto Woodland Drive and proceed 0.2 miles. Turn onto Crestview Drive and proceed 0.3 miles to Highland Loop Circle. Turn left and follow the circle 0.1 miles to a dirt road. Travel along the road past a large brown house to a fork after 0.15 miles to a gate. From here cross the fence and walk up the slope. Walk around the west end of a large oak clone and continue up the slope. Look for a large, lone high lined Rocky Mountain Juniper. The 0-foot baseline is ten feet from this tree. The baseline runs between a couple of large serviceberry.



Map Name: Woodland

Township 3S , Range 6E , Section 2



Diagrammatic Sketch

UTM 4493241 N 480844 E

DISCUSSION

Trend Study No. 7-9

The Above Woodland trend study was original established in 1984 sampling a closely intermixed mountain big sagebrush/grass and Gambel oakbrush winter range located north of Woodland. Due to low big game use of the site and low numbers of mountain big sagebrush sampled, the site was moved about a quarter of a mile to the southwest. The new area supports a more dense stand of sagebrush in association with other preferred browse species including serviceberry and bitterbrush. This new site has a southwest aspect with a 25% to 30% slope at about 7,000 feet in elevation. The Provo River winter range in the Woodland area appears to be principally a "normal" deer winter range, although elk and moose pellet groups can also be found. This area is at a high enough elevation that deep snow may preclude use during severe winters. A pellet group transect read on site in 2001 estimate 16 deer and 31 elk days use/acre (40 ddu/ha and 78 edu/ha). All of the elk pellet groups appear to be from winter use while most deer pellets were from spring use.

Soil is moderately deep, but very stony. Surface rocks vary in size from pavement to large rock. Percent surface rock and pavement cover is high at 40%. Soil parent material appears to be sandstone and shale which gives the soil a reddish color. Due to the high rock content of the soil profile, effective rooting depth was estimated at only about 7 inches. The soil is obviously deeper considering the presence of deep rooted shrubs. Soil texture is a clay loam with a slightly acid soil reaction (6.2 pH). There is abundant protective ground cover which leaves little exposed bare ground. There is little soil movement occurring and the soil erosion condition class was determined as stable in 2001.

The browse composition consists primarily of mountain big sagebrush with lesser amounts of serviceberry and antelope bitterbrush. Mountain big sagebrush provides 57% of the total browse cover with a population of 2,260 plants/acre. The population is mostly mature with light use and generally good vigor. Serviceberry numbers 840 plants/acre. Utilization is moderate to heavy but vigor is good and percent decadence is low at 10%. Only a few bitterbrush plants occur on the site. They show moderate use but are vigorous. Other browse encountered include low numbers of dwarf and stickyleaf low rabbitbrush, broom snakeweed, snowberry, gray horsebrush, and high numbers of creeping barberry.

The herbaceous understory is moderately abundant but limited somewhat by competition with shrubs and poor site potential caused by the high rock content of the soil. Perennial grasses are diverse but only three species, bluebunch wheatgrass, Kentucky bluegrass, and Sandberg bluegrass are abundant. Annual grasses, Japanese brome and cheatgrass also occur but they are not very abundant. Forbs are also diverse with 24 species identified. The only moderately abundant perennial forbs consist of Louisiana sage and silvery lupine which provide 76% of the forb cover. Most other forbs occur infrequently. Little use was found on grasses or forbs.

2001 APPARENT TREND ASSESSMENT

Soil conditions appear stable with little erosion occurring due to the abundant protective ground cover. Browse populations appear stable with mostly light use and good vigor of the mountain big sagebrush. Serviceberry is more heavily used but it also displays good vigor. The herbaceous understory is diverse but only a few species are very abundant. Grasses and forbs are probably limited by competition with shrubs and a poor site potential. Soil on the site is very rocky on the surface and throughout the profile.

HERBACEOUS TRENDS --
Herd unit 07 , Study no: 9

Type	Species	Nested Frequency '01	Quadrat Frequency '01	Average Cover % '01
G	Agropyron spicatum	198	56	9.50
G	Agropyron trachycaulum	17	6	.54
G	Bromus carinatus	1	1	.03
G	Bromus japonicus (a)	135	52	1.26
G	Bromus tectorum (a)	48	24	.39
G	Koeleria cristata	8	4	.56
G	Poa fendleriana	28	12	.23
G	Poa pratensis	87	30	1.56
G	Poa secunda	135	41	1.94
G	Sitanion hystrix	23	8	.43
Total for Annual Grasses		183	76	1.65
Total for Perennial Grasses		497	158	14.80
Total for Grasses		680	234	16.46
F	Agoseris glauca	7	3	.01
F	Alyssum alyssoides (a)	55	28	.19
F	Allium spp.	36	18	.11
F	Arabis spp.	4	3	.06
F	Artemisia ludoviciana	40	14	1.64
F	Calochortus nuttallii	6	3	.01
F	Cirsium undulatum	8	4	.10
F	Collomia linearis (a)	44	19	.12
F	Collinsia parviflora (a)	24	8	.04
F	Cymopterus spp.	3	1	.00
F	Descurainia pinnata (a)	8	2	.01
F	Epilobium brachycarpum (a)	3	1	.01
F	Eriogonum racemosum	4	2	.06
F	Eriogonum umbellatum	4	1	.01
F	Galium aparine (a)	3	2	.03
F	Holosteum umbellatum (a)	7	3	.01
F	Lupinus argenteus	10	4	.97
F	Microsteris gracilis (a)	2	1	.00
F	Phlox longifolia	14	6	.03
F	Polygonum douglasii (a)	50	22	.18
F	Senecio integerrimus	2	1	.03

Type	Species	Nested Frequency '01	Quadrat Frequency '01	Average Cover % '01
F	Senecio multilobatus	1	1	.03
F	Tragopogon dubius	25	12	.23
F	Viguiera multiflora	3	3	.09
Total for Annual Forbs		196	86	0.61
Total for Perennial Forbs		167	76	3.42
Total for Forbs		363	162	4.04

BROWSE TRENDS --
Herd unit 07 , Study no: 9

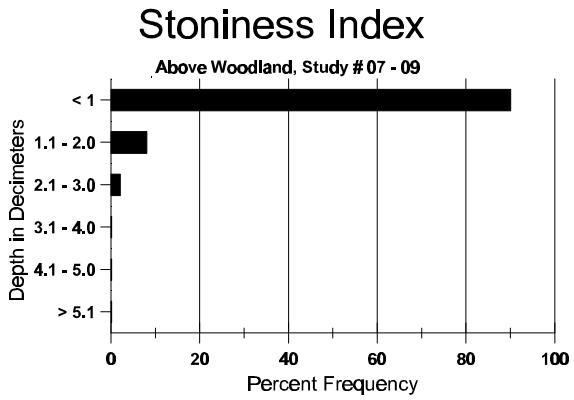
Type	Species	Strip Frequency '01	Average Cover % '01
B	Amelanchier alnifolia	34	6.10
B	Artemisia tridentata vaseyana	62	15.92
B	Chrysothamnus depressus	10	.45
B	Chrysothamnus viscidiflorus viscidiflorus	5	.15
B	Gutierrezia sarothrae	20	.98
B	Mahonia repens	37	1.29
B	Opuntia spp.	9	.03
B	Purshia tridentata	1	1.78
B	Symphoricarpos oreophilus	24	1.37
B	Tetradymia canescens	1	-
Total for Browse		203	28.10

BASIC COVER --
Herd unit 07 , Study no: 9

Cover Type	Nested Frequency '01	Average Cover % '01
Vegetation	404	48.56
Rock	308	23.71
Pavement	315	15.28
Litter	430	36.37
Cryptogams	6	.39
Bare Ground	159	5.36

SOIL ANALYSIS DATA --
Herd Unit 07, Study no: 09, Above Woodland

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
6.6	53.0 (6.4)	6.2	36.2	35.4	28.4	3.8	27.6	214.4	.5



PELLET GROUP FREQUENCY --
Herd unit 07 , Study no: 9

Type	Quadrat Frequency '01	Pellet Transect	
		Pellet Groups per Acre '01	Days Use per Acre (ha) '01
Rabbit	12	148	N/A
Elk	15	409	31 (78)
Deer	7	208	16 (40)

BROWSE CHARACTERISTICS --
Herd unit 07 , Study no: 9

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
S	01	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
Y	01	5	1	-	1	-	-	-	-	-	7	-	-	-	140			7
M	01	3	15	10	1	2	-	-	-	-	29	-	2	-	620	30	38	31
D	01	1	2	1	-	-	-	-	-	-	3	-	-	1	80			4

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'01	48%	26%	07%	

Total Plants/Acre (excluding Dead & Seedlings) '01 840 Dec: 10%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
Y	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	01	79	6	-	-	-	-	-	-	-	85	-	-	-	1700	22	34	85
D	01	23	1	-	-	-	-	-	-	-	15	-	-	9	480			24
X	01	-	-	-	-	-	-	-	-	-	-	-	-	-	680			34
% Plants Showing '01				Moderate Use 06%			Heavy Use 00%				Poor Vigor 08%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		2260	Dec:		21%
Chrysothamnus depressus																		
M	01	13	-	-	-	-	-	-	-	-	13	-	-	-	260	7	14	13
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		260	Dec:		-
Chrysothamnus viscidiflorus viscidiflorus																		
M	01	7	-	-	-	-	-	-	-	-	7	-	-	-	140	13	15	7
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		140	Dec:		-
Gutierrezia sarothrae																		
Y	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	01	31	-	-	-	-	-	-	-	-	31	-	-	-	620	8	14	31
D	01	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 03%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		700	Dec:		3%
Mahonia repens																		
Y	01	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
M	01	531	-	-	-	-	-	-	-	-	531	-	-	-	10620	4	5	531
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		10760	Dec:		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
Y	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	01	16	-	-	-	-	-	-	-	-	16	-	-	-	320	3	8	16
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		340	Dec:		-
Purshia tridentata																		
M	01	-	1	-	-	-	-	-	-	-	1	-	-	-	20	26	122	1
% Plants Showing '01				Moderate Use 100%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		20	Dec:		-
Symphoricarpos oreophilus																		
Y	01	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
M	01	19	-	-	1	-	-	-	-	-	20	-	-	-	400	18	29	20
D	01	4	-	-	-	-	-	-	-	-	3	-	-	1	80			4
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 04%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		500	Dec:		16%
Tetradymia canescens																		
M	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		20	Dec:		-